1855MNRAS..15...92B

Comparison of Calculated and Observed Distances.

Date.	d_c	d_o	$d_c - d_o$	Observers.	Remarks.
	″	″	″		
1823·47	1·34	1·45	—·11	H & S	
1826·77	1·28	1·3	—·02	Σ	
1830·52	1·29	1·26	+·03	H, Sm	1830·28, 1″·22 H;
1832·37	1·33	1·4	—·07	Sm	1830·76, 1″·3 Sm
1833·47	1·36	1·25	+·11	D, Sm	1833·36, 1″·3 D;
1835·5	1·43	1·4	+·03	Sm	1833·58, 1″·2 Sm
1839·67	1·62	1·6	+·02	Sm	
1843·35	1·7975	1·8	—·0025	Sm	
1846·22	1·94	1·87	+·07	J	
1853·7	2·25	2·21	+·04	J	

H̥ stands for Sir W. Herschel; H for Sir J. Herschel; Σ for Prof. Struve; S for Sir J. South; Sm for Admiral Smyth; D for the Rev. Mr. Dawes; J for Captain Jacob.

"It is not necessary to dwell upon the foregoing; but I would remark that my orbit approaches much nearer to the early one of Sir J. Herschel than it does to those computed by Messrs. Mädler and Hind at more recent dates. So far as I am able to judge, there does not appear to be ground for believing the period to extend over six or seven hundred years.

"I did not think it worth while to form equations of condition with the view of correcting the elements, as the orbit represents the observations, more especially those of distance, with very considerable accuracy: indeed in no other case have I arrived at equally respectable results, I will not say after the first, but even after the third or fourth approximation.

"*Madras, Nov. 20th,* 1854."

Observations of the Zodiacal Light in 1854.
By T. W. Burr, Esq.

In continuation of my previous notice of the zodiacal light, I have to report that in the spring of 1854 I observed it on the evenings of February 16th, 18th, 23d, 25th, and 26th; March 17th, 21st, 23d, 27th, and 30th; and April 17th. The first and two last appearances were mere glimpses, but on February 18th the view was exceedingly good; and those of 21st March from 8^h 10^m to 9^h Greenwich mean time, and 23d March from 8^h to 8^h 30^m, were as fine as possible in this latitude and locality.

It is unnecessary to describe its course and appearance with any great minuteness, as there is always a difficulty in ascertaining its exact extent. Generally it very much resembled the description I gave of it in the preceding year, extending in the early

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1855MNRAS..15...93A

observations to the vicinity of the Pleiades, and in the later ones to that of *Aldebaran.* Upon the whole its boundaries were not so well defined as in 1853.

I have observed occasional sudden variations in its brightness, but have been unable to detect anything like a periodicity in these changes; and knowing the great influence of atmospheric causes on objects having low altitude, I should hesitate to ascribe them to a real variation in the brightness of the light. Generally speaking, when best seen, the brilliancy was greater than that of the milky way, which was usually visible at the same time in the north-west.

Highbury, January 1855.

On the Pendulum Experiment for Illustrating the Rotation of the Earth. By Lieut. Ashe, R.N.

After some geometrical illustrations, the author gives the following description of the pendulum employed by him in these experiments:—

"In the centre of an equilateral plate a small hole was drilled, through which a piece of the best pianoforte wire, a foot in length, was put, fitting tight, and secured to the plate by the wire having a nut screwed on the end of it, and a loop was turned at the other end of the wire. To this steel circular spring a copper wire, stretched and rubbed, was attached; the length of pendulum was 52 feet, and the weight, a leaden sphere, 17lbs. The plate was firmly screwed to a beam in the steeple of Chalmers' Church of this city (Quebec); the pendulum was protected from any current of air. At about the height of the eye, when sitting down, a wooden circle, 4 inches broad, 3 inches thick, and 8 feet in diameter, was fixed and graduated on the inner edge, so that by placing the eye on a level with the circumference, the time of the wire coinciding with each degree could be noted with great nicety.

"I found steel wire more unsatisfactory in its results than any other sort, in consequence of its being so very sonorous,—so much so, that the noise of a cricket, or any other sound that would harmonise with the wire, produced undulations."

Description of Shepherd's Galvano-Magnetic Regulator.
By Henry S. Ellis.

(*Communicated by Dr. Lee.*)

I beg to forward a description of the galvano-magnetic regulator and apparatus, which have been manufactured by the

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